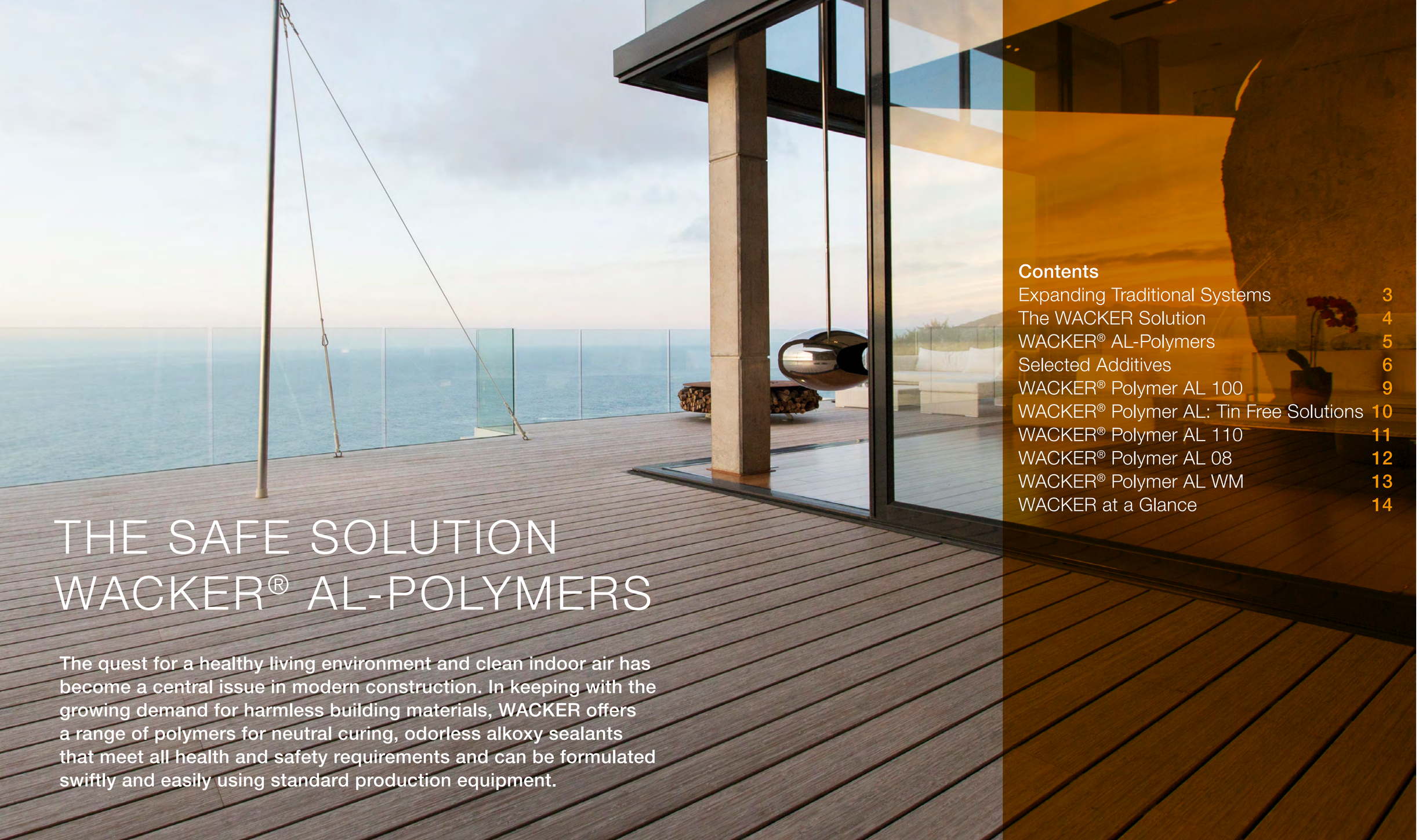
WACKER

CREATING TOMORROW'S SOLUTIONS

CONSTRUCTION I SILICONE SEALANTS

BUILDING THE FUTURE – WACKER® AL-POLYMERS



THE SAFE SOLUTION WACKER® AL-POLYMERS

The quest for a healthy living environment and clean indoor air has become a central issue in modern construction. In keeping with the growing demand for harmless building materials, WACKER offers a range of polymers for neutral curing, odorless alkoxy sealants that meet all health and safety requirements and can be formulated swiftly and easily using standard production equipment.

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EXPANDING TRADITIONAL SYSTEMS

In the construction sector as well as in industrial applications, silicone sealants are the products of choice for connection and expansion joints. Acetoxy has been the most dominant curing system for decades. Due to raised health awareness, alternative neutral curing solutions have gained in importance over the last years. To date, however, all systems have advantages and shortcomings.

	Acid Systems	Oxime	Alkoxy
Performance	Reliable curing, robust mechanical properties, outstanding storage stability	Robust performance in exterior and interior applications	Superior adhesion on a wide variety of substrates in exterior and interior application
Production Process	Easy formulation for reliable and constant product quality	Easy formulation for reliable and constant product quality	Traditional in-situ processes use initial endcapping followed by compounding. These proved exceedingly difficult to steer with resultant fluctuating sealant quality
Application	Traditional use as elastic joint sealing in sanitary area, bath and kitchen, with typical smell due to acetic acid release	Neutral system in applications where acetoxies unsuitable. Former release pungent smelling ketoximes upon cure	An almost odourless all-rounder for indoor and outdoor areas, as well as special applications, e.g: Natural stone

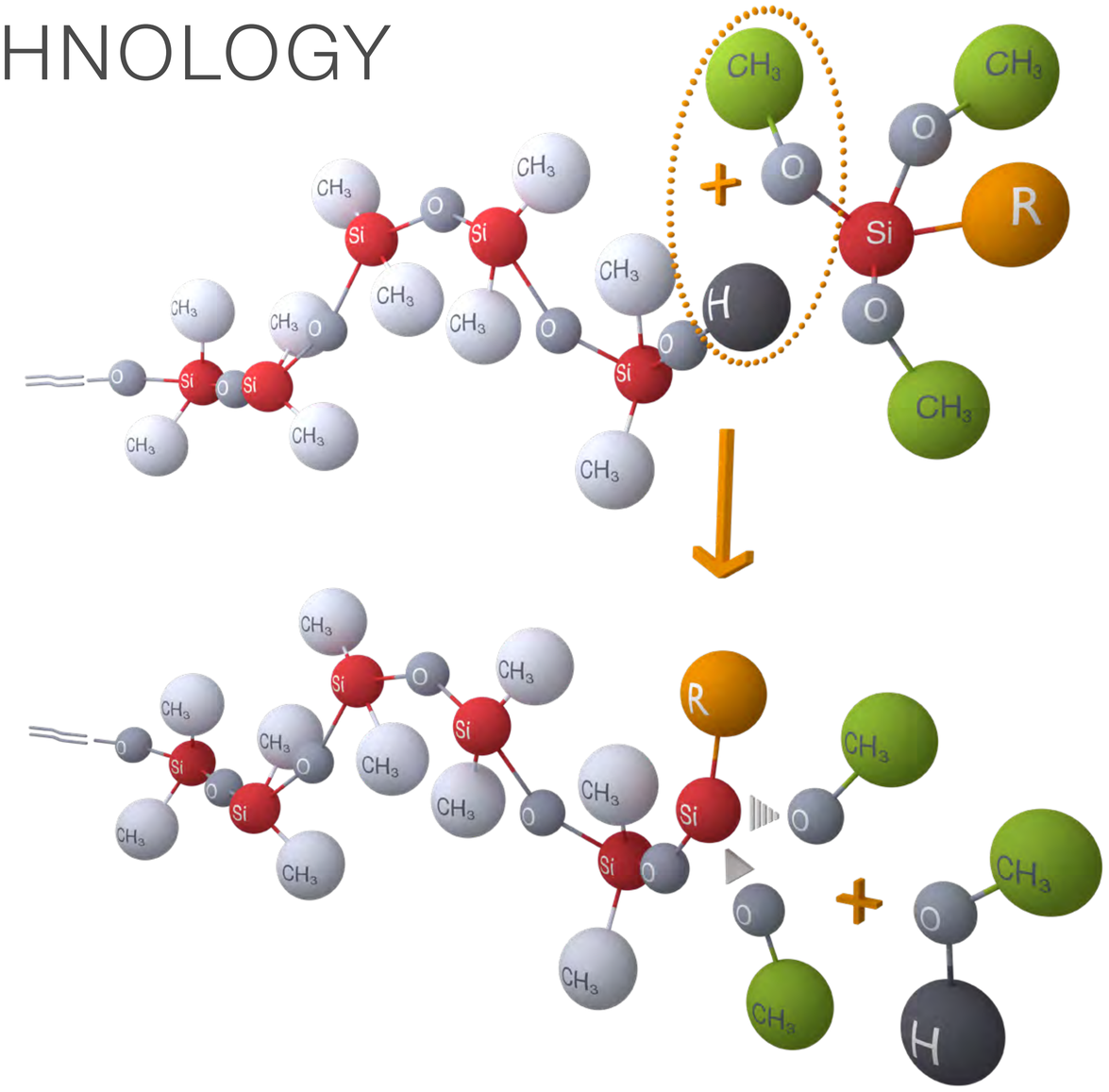
OUR SOLUTION
WACKER® AL-POLYMER TECHNOLOGY

For robust alkoxy compounding technology, WACKER has developed AL-Polymers that are already end-capped when supplied. This means the formulator obtains highly functionalized polymers in a consistent quality. Although the polymer itself contains cross-linkable end-groups it is stable enough for handling in typical batch compounding equipment.

Easy Compounding
With AL-Polymers, the compounding process becomes fast and easy and guarantees reliable and constant product quality.

High Flexibility
Five different WACKER AL-Polymers cover the major needs in neutral curing sealants yet give the required flexibility to formulate products for diverse and specialized applications.

Ready-to-Use
Three grades are customized available with formulation proposals for well-defined and ready-to-go recipes for formulators looking to step into alkoxy technology without finetuning the suggested recipes.



PRODUCT OVERVIEW
ONE TECHNOLOGY, FOUR POLYMERS

WACKER Raw Materials for Compounding of Alkoxy Silicone Sealants							
Product	**Type**	**End Group**	**Special Features**	**Viscosity (mPa·s, 25 °C)**	**Molecular Weight**	**Density (g/cm³ at 20 °C)**	**Flash Point (°C ISO 3679)**
Alkoxy-Polymers							
WACKER® Polymer AL 100	Dimethoxy-terminated-polydimethylsiloxane	– OCH_3	High-functional polymer for all uses, plasticizer-free	~ 100,000	~ 80,000	0.97	90
WACKER® Polymer AL 110	Dimethoxy-terminated-polydimethylsiloxane	– OCH_3 – CH_3	Polymer designed for low- modulus filled formulations	~ 110,000	~ 120,000	0.97	90
WACKER® Polymer AL 08	Dimethoxy-terminated-polydimethylsiloxane	– OCH_3	Low viscous polymer for higher- crosslinking and flowable systems	~ 8,000	~ 35,000	0.97	83
WACKER® Polymer AL WM	Monofunctional Dimethoxy-terminated PDMS	– OCH_3 – CH_3	Low viscous reactive plastisizer. Alternative to plasticizers that cause visible effects during application	~ 7,000	~ 33,000	0.97	78

SELECTED ADDITIVES
ALKOXY CROSSLINKERS

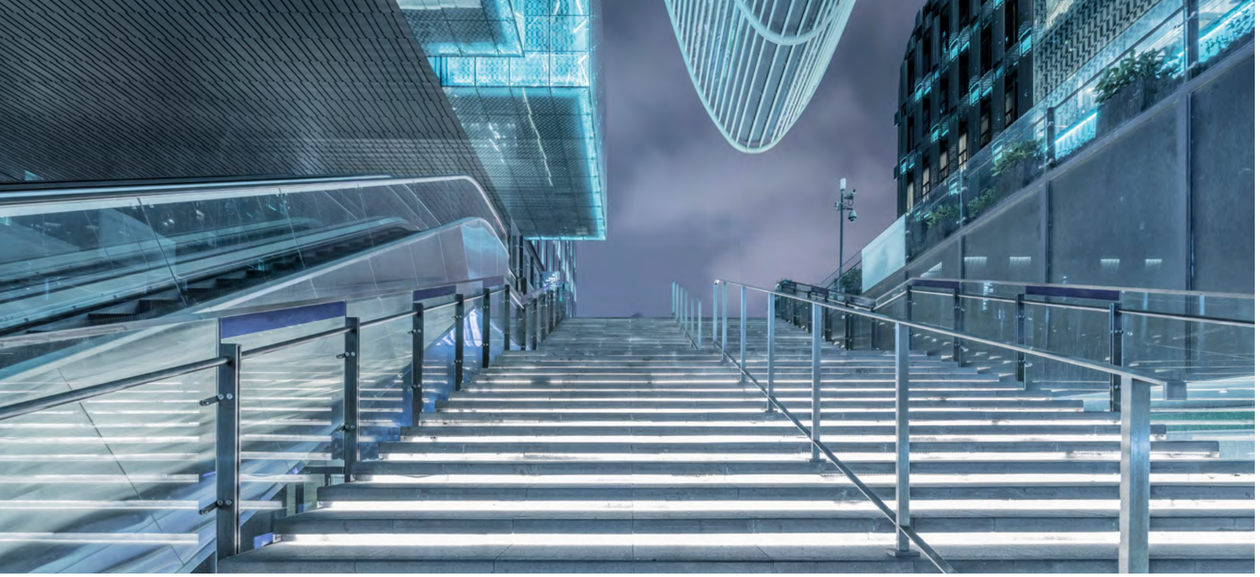
Alkoxy Crosslinkers						
Product	**Type**	**Special Features**	**Mol. Weight (g/mol)**	**Boiling (°C, 1013hPa)**	**Density (g/cm^3 at 20 °C)**	**Flash Point (°C)**
GENIOSIL® VTM	Vinyltrimethoxysilane	Fast X-linker for robust curing	148.2	122	0.97	25 (ISO 13736)
GENIOSIL® VTE	Vinyltriethoxysilane	X-linker for adjusted curing speed and improved green strength	190.3	158	0.91	37 (ISO 3679)
CROSSLINKER ALX	Crosslinker package for tin-catalyzed AL systems	Allround crosslinker for formulations with improved skin forming time	–	236	0.95	36 (ISO 3679)
CROSSLINKER ME 15	Methyltrimethoxysilane	High purity methoxy-X-linker	136.2	102	0.95	11 (DIN 51755)
CROSSLINKER ME 60	Crosslinker/stabilizer package for transparent formulations	Designed for 25LM in transparent Polymer AL 60 formulations	–	>102	1.00	11 (DIN 51755)
CROSSLINKER ME 63	Crosslinker/stabilizer package for filled formulations	Designed for 25LM in filled Polymer AL110 formulations	–	>102	0.99	11 (DIN 51755)

SELECTED ADDITIVES
ADHESION PROMOTERS

Adhesion Promoters						
Product	**Type**	**Special Features**	**Amine Number (meq/g)**	**Boiling (°C, 1013hPa)**	**Density (g/cm³ at 20 °C)**	**Flash Point (°C)**
GENIOSIL® DAPTM	Aminoethyl-aminopropyl-trimethoxysilane	Adhesion promoter and very efficient X-linker	9.1	147 (16 hPa)	1.02	>100 (EN 22719)
GENIOSIL® GF 94	Aminoethyl-aminopro-pyl-triethoxysilane	Adhesion promoter and X-linker for filled systems	7.3	>110 (3 hPa)	0.97	>100 (ISO 2719)
GENIOSIL® APTE	Aminopropyl-triethoxysilane	General adhesion promoter – ethoxy	4.5	217	0.94	93 (ISO 2719)
GENIOSIL® APTM	Aminopropyl-trimethoxysilane	General adhesion promoter – methoxy	5.6	210	1.01	79 (EN 22719)
Adhesion Promoter AMS 50	Aminofunctional silicone resin	Filled systems (diamino, methoxy)	3.0	>170	1.02	>100 (EN 22719)
Adhesion Promoter AMS 60	Aminofunctional silicone resin	Higher amine level compared to AMS 50	4.8	>170	1.00	>100 (EN 22719)
Adhesion Promoter AMS 61	Aminofunctional silicone resin	Good paintability (secondary amine, methoxy)	2.3	>200	1.02	>100 (ISO 2719)
Adhesion Promoter AMS 68	Aminosilane modified resin	Adhesion to plastics (primary amine, ethoxy)	2.5	>168	1.05	48 (ASTM D56)
Adhesion Promoter AMS 70	Aminofunctional silicone resin	Broad adhesion profile, robust curing; low yellowing (primary amine, ethoxy)	2.2	>150	1.04	55 (ISO 3679)

SELECTED ADDITIVES
AUXILIARIES

Auxiliaries						
Product	**Type**	**Special Features**	**Metal Content (%)**	**Boiling (°C, 1013hPa)**	**Density (g/cm^3 at 20 °C)**	**Flash Point (°C ISO 2719)**
STABILIZER POP	Phosphonic acid modified silicone resin	Stabilizer	–	>102	1.05	18
STABILIZER Alkoxy	Bis-trimethylsilylurea-mixture	Stabilizer, alcohol scavenger	–	–	0.96	122
CATALYST C88	Dioctyltin-catalyst	Silicate resin modified catalyst	~ 6 % Sn	>150	1.05	48
CATALYST AL-T	Titanium-catalyst	Catalyst formulation for filled Alkoxy	~ 7 % Ti	>102	0.98	11



WACKER® POLYMER AL 100
POLYMER FOR ALL USES

- Base polymer for fast and simple compounding
- Plasticizer-free for maximum formulation latitude
- Suitable for transparent and chalk-filled formulations
- Provides alkoxy sealants with enhanced curing properties, improved crack resistance and greater storage stability
- Compatible with all AL-Polymers to adjust properties, e.g. combination of AL 100 and AL 110 optimizes modulus and elongation

Transparent formulation:
Guide Recipe and Mechanical Properties

Chalk-filled formulation:
Guide Recipe and Mechanical Properties

WACKER® POLYMER AL: FOR TIN FREE FORMULATIONS
AN ALTERNATIVE FOR SELECTIVE APPLICATIONS

- AL100 as an example for Sn-free formulations – suitable with all AL-Polymers
- Easily compatible with typical silicone plasticizers to aid processing
- Catalyst AL-T suitable for systems containing wide range of active and inactive fillers
- Good adhesion profile e.g. to metal, glass, concrete, selected plastics and additional substrates

Guide Recipe and Mechanical Properties

WACKER® POLYMER AL 110
FOR LOW-MODULUS CHALK-FILLED SEALANTS

- Special polymer with a higher molecular weight for low-modulus chalk-filled sealants
- Contains an adjusted plasticizer content to remain in a standard viscosity range
- Provides sealants with robust curing and good storage stability
- Combination with standard calcium carbonates as fillers is possible

Guide Recipe and Mechanical Properties

WACKER® POLYMER AL 08
FOR SILICONE ROOFING COATINGS

- Polymer for compounding a silicone roofing coating
- Provides roofing coatings which can be applied in several layers by spraying, brushing or rolling
- Forming seamless and elastic protection to stop water penetration
- Product of choice where high temperature control and UV stability are imperative

Further formulation options are possible:
- Transparent coatings
- Tin-free formulations
- Two-component formulation for extended compound-durability

Guide Recipe and Mechanical Properties for Flowable Coating Formulation

WACKER® POLYMER AL WM
DESIGNED FOR NATURAL STONE SEALANTS

- Monofunctional, reactive silicone plasticizer: WACKER® POLYMER AL WM in combination with the WACKER® POLYMER AL 100 w/o adding other plasticizers allows compounders to produce sealants, eliminating natural stone staining and edge zone hydrophobisation
- Suitable for natural stones and all common substrates.
- Ideal for both indoor and outdoor applications.
- Prevents edge zone hydrophobization for a flawless finish.
- Offers excellent weather and UV resistance for long-lasting performance.
- Ensures strong adhesion properties on various surfaces.
- Provides movement-compensating sealing and bonding for durable joints.
- Certified EC1+ and VOC-free for maximum environmental safety.
- Formulated without oxime for safer and cleaner application.

Guide Recipe and Mechanical Properties

CREATING TOMORROW'S SOLUTIONS

A Diverse Array of Products for Growing Markets

Our product portfolio ranges from silicones, binders and polymeric additives all the way up to bioengineered pharmaceutical actives. Rounding these out is hyperpure silicon for semiconductors and solar applications.

Innovations that Improve Quality of Life

As a technology leader focusing on sustainability, WACKER promotes products and ideas that offer a high value-added potential to ensure that current and future generations enjoy a better quality of life, based on energy efficiency and protection of the climate and environment.

Global Knowledge for Local Markets

When you work with WACKER, you have 100 years of chemistry expertise at your disposal, with access to the research findings and best practices of our experts throughout the world. Our knowledge base consists of a network of 21 technical centers, 14 training centers and our basic research center.

And most importantly: we are there wherever you need us – worldwide. Our local specialists know your markets and speak your language. Working with them, you will find innovative solutions that win over your customers and make you more competitive.

Follow us:
Find us on LinkedIn, YouTube and Twitter, and we'll keep you up to date on the latest and discuss current issues with you.

All figures are based on fiscal 2024.

Silicones and Polymers

3,200 specialty products from organic and inorganic chemistry

Global Market Leader

In dispersions and dispersible polymer powders based on vinyl acetate-ethylene (VAE), in building-protection silicones and in the production of cyclodextrin and cystein.

Globally Active

- Sites worldwide
- Headquartered in Munich
- 27 production sites in Europe, Asia and the Americas
- 21 technical centers
- 14 WACKER ACADEMY training centers
- 48 sales offices

Employees: 16,600

Total Sales

€5.7 billion

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